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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/348,320	07/07/1999	KENNETH ALAN PIERONI	CHMP-102	5075

7590 09/25/2002

MORLAND C FISHER  
2030 MAIN STREET SUITE 1050  
IRVINE, CA 92614

EXAMINER
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GARBER, CHARLES D

ART UNIT	PAPER NUMBER
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2856

DATE MAILED: 09/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/348,320

Applicant(s)

PIERONI ET AL.

Examiner

Charles D Garber

Art Unit

2850

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,3,19 and 21-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19 and 21-28 is/are allowed.
- 6) ☒ Claim(s) 1,3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Response to Arguments***

Applicant's arguments filed 8/22/2002 have been fully considered but they are not persuasive.

Applicant argues with respect to claim 1 that the Chu reference use of nitrogen gas "has nothing whatsoever to do with the process of generating smoke", that Chu uses the nitrogen to blow the smoke away from the smoke generating chamber. Examiner contends that claim 1 is not a process or method claim. Nevertheless, Chu does in fact use nitrogen very much the same way as the instant invention when put to use. Smoke is generated at a liquid/gas interface. In the case of Chu, at the surface of the liquid below the gas in the container 2 and in the case of the Pieroni reference or instant invention at the surface of the droplet suspended in gas near the heating coil. Chu and the instant invention use nitrogen as the preferred gas for essentially the same reason. Nitrogen will not react with the oil.

Applicant also argues that the Chu reference is non analogous art because Chu is directed toward analyzing edible oils and the Pieroni reference and instant invention are directed toward the use of smoke in leak detection. Examiner considers that with respect to the process of generating smoke both references and the instant invention are analogous in the use of gas as a carrier.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pieroni et al. (US Patent 5,922,944) in view of Chu et al. (US Patent 5,849,596).

Regarding claim 1, Pieroni et al., henceforth referred to as "Pieroni", discloses a smoke producing apparatus and operation for detecting leaks in a fluid system including a smoke producing chamber 1 which appears in figure 1 to be closed, and a fluid supply 2 preferably of Citgo synthetic PAO oil, which is known to be flammable at 480°F.

Pieroni also discloses a heating grid 4 shown in figures 1 and 5 to be within the chamber, a gas inlet tube 16 with orifice 18 for blowing gas and fluid mixture against the heating grid energized by DC current (column 3 line 66 to column 4 line 10), an air outlet 14 for removing the exiting smoke (column 3 lines 16-23), and a source of air 25 which is a gas.

Pieroni et al. however does not expressly teach the gas is Nitrogen, which is inherently a non-combustible gas.

Chu discloses a smoke generator wherein there is taught the use of nitrogen, or any other suitable gas that would not deteriorate the smoke, as a gas for blowing smoke.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use Nitrogen to blow smoke as Nitrogen will not deteriorate smoke.

The structural arrangement of Pieroni is identical to the arrangement of the instant invention and will inherently prevent dieseling within the closed chamber as in the instant invention when using nitrogen as a propellant advantageously taught by Chu.

As for claim 3, Pieroni et al. further disclose an air inlet tube 16 shown in figure 1 and 5 extending through and above the fluid supply 2 as in the instant invention. The tube also blows a mixture of gas and fluid against the heating grid 4 as in the instant invention (column 3 line 66 to column 4 line 10).

***Allowable Subject Matter***

Claims 19, 21-28 are allowed.

See Examiner's earlier office action for reasons for allowance of claims 19, 21-24

The following is an examiner's statement of reasons for allowance of claims 25 through 28:

Regarding claim 25, the Pieroni reference teaches a method for generating smoke for use in a fuel system (which is a volatile, potentially explosive environment), the method including locating a supply of oil (which is a flammable fluid) within a smoke

producing chamber, the smoke producing chamber having a gas inlet to receive a gas under pressure; supplying the gas under pressure to the smoke producing chamber via the gas inlet for blowing a mixture of the gas and said supply of flammable fluid against a heating element energizing the heating element for vaporizing into smoke the mixture of gas and the flammable fluid that is blown against said heating element, and delivering the smoke produced by said heating element to the volatile potentially explosive environment. Though the Pieroni reference lacks using a noncombustible gas the Chu reference provides advantageous use of nitrogen which is noncombustible in a smoke generator. However, the express use of the noncombustible gas creating an inert environment within a smoke producing chamber and the noncombustible gas preventing ignition and thereby avoiding the possibility of an explosion at the volatile, potentially explosive environment at which the smoke will be used is not taught in the prior art. For this reason Examiner considers claim 25 to be patentably distinct over the prior art of record.

Claim 28 is considered patentably distinct for substantively the same reasons given for claim 25 discussed above.

Claims 26 and 27 depending from allowed claim 25 are allowed for the same reason.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles D Garber whose telephone number is (703) 308-6062. The examiner can normally be reached on Monday to Friday, 7:00 AM-3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (703) 305-4705. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7725 for regular communications and (703) 308-7725 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.

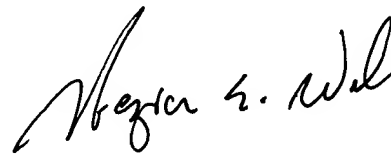
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September 20, 2002

A handwritten signature in black ink, appearing to read "Hezron Williams", with a long horizontal line extending to the right.

HEZRON WILLIAMS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800